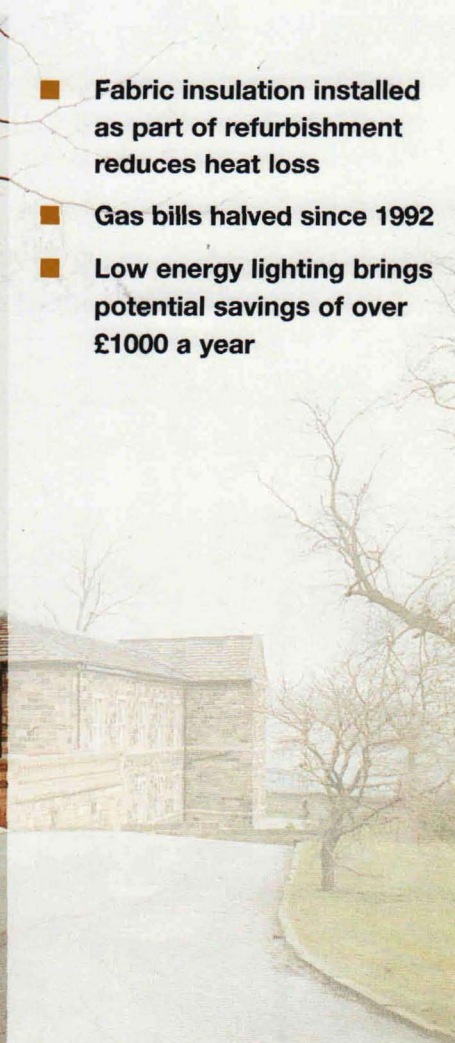


## Energy efficiency in care homes

Batley Hall nursing and residential home



- Fabric insulation installed as part of refurbishment reduces heat loss
- Gas bills halved since 1992
- Low energy lighting brings potential savings of over £1000 a year



ARCHIVED DOCUMENT ENERGY EFFICIENCY

BEST PRACTICE  
PROGRAMME



## INTRODUCTION

### INTRODUCTION

Energy efficiency is high on the agenda at Batley Hall nursing and residential home, situated outside the town of Batley in West Yorkshire. Between 1992 and 1994, gas consumption was cut by half and the total fuel bill reduced by nearly 30%.

This Case Study describes how Batley Hall's owners, Barry and Eileen Hartley, have successfully incorporated energy efficiency measures into refurbishment projects as well as carrying out separate energy-saving improvements.

It also suggests a number of energy measures that could be introduced which would further reduce the home's fuel bills while ensuring the prime consideration of a warm and comfortable environment for the residents.

### BACKGROUND

Batley Hall dates back to the 16th century, but the original house was rebuilt in 1856 after a serious fire. It became a private residential home in 1955, and major extensions were added in 1979 and 1988.

Since the Hartleys took over in 1975 the home has expanded its capacity to the present total of 40 beds. It now has dual registration for 20 nursing and 20 residential clients in the frail elderly and terminally ill categories.

### BUILDING DESCRIPTION

The original hall houses the main entrance area, kitchens and ten bedrooms. It is less than half the size of its two extensions, but the home as a whole still retains the character of the original building.

The first extension was built in 1979 and contains the office area, kitchen, laundry and store room on the ground floor. The first floor has recently been converted from the owners' private flat into additional bedrooms for residents, an unheated conservatory and a staff training room.

The latest and largest extension, built in 1988, contains the large dining and lounge areas and 20 bedrooms.

Some of the original single glazed timber windows have been replaced with new double glazed timber units. The roof is pitched with a slate covering and about 200 mm of mineral fibre insulation.

Three gas boilers provide the home with heating and hot water.

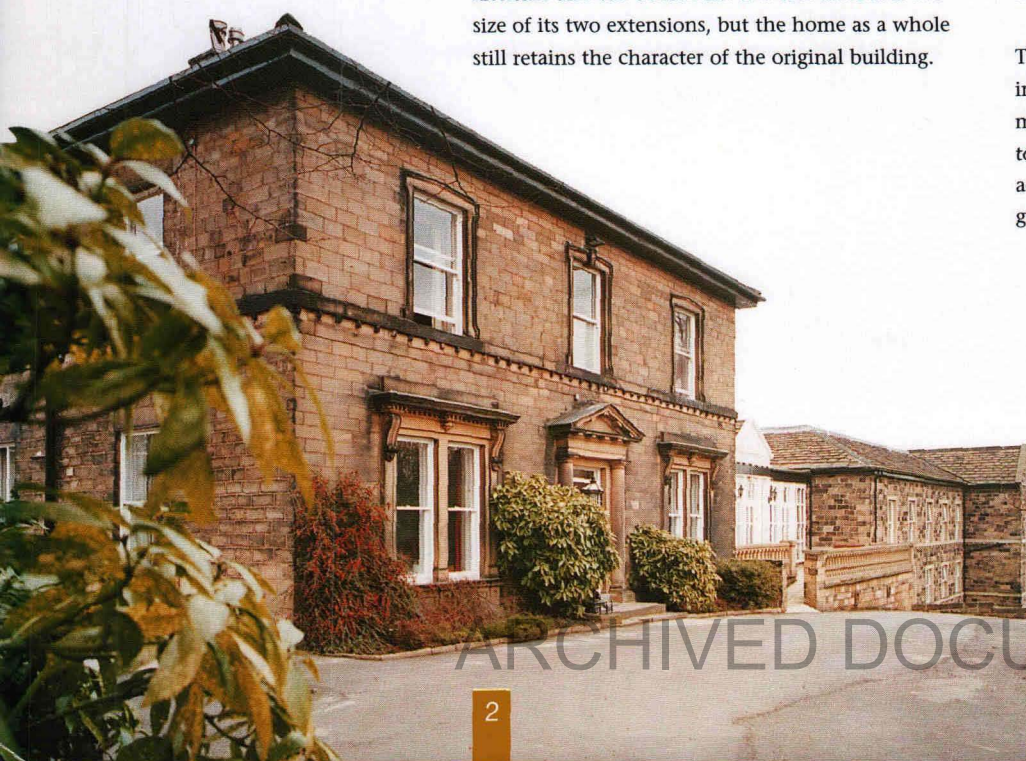
### ENERGY EFFICIENT IMPROVEMENTS

Barry and Eileen Hartley see energy efficiency measures as a way of investing in the future. Many of the measures they have introduced have formed part of a programme of general improvements, as they consider this to be the most cost-effective way of implementing them.

#### The first extension

The Hartleys began including energy efficiency in building works as far back as 1979 when the first extension was built. Filling wall cavities with insulation and using lightweight insulating blockwork for the internal walls has kept heat loss to a minimum and allowed the central heating to keep occupants warm without imposing high fuel bills.

The unheated conservatory added to the extension in 1994 gives an additional pleasant room for use in mild weather but it is important that it is unheated to avoid wasting energy. Heated conservatories can add considerably to fuel bills and should not generally be regarded as an energy saving feature.





## ENERGY EFFICIENCY IMPROVEMENTS

### The second extension

The second extension was added in 1988. The dining and lounge areas are south-facing with doors opening onto the gardens. An important aesthetic feature of the lounge is the large glazed area which allows a lot of daylight to enter the room.

This extension also has gas-fired central heating, with thermostatic radiator valves (TRVs) giving control to individual rooms. The hot water cylinder has spray foam insulation. There are two fan-assisted electrical heaters to act as boosters and to move air around in the lounge and dining areas. In all other rooms throughout the home electrical heaters are not allowed except in emergencies.

### Improvements to the original hall

Over the years the owners have incorporated energy efficiency in the original hall either as separate measures or as part of a programme of general improvements. In 1985 the uninsulated roof was given 200 mm of mineral fibre insulation and in 1993 radiators were fitted with TRVs.

The building is in a conservation area and, as part of the programme of general improvements, windows have been replaced over the last ten years with double glazed units in keeping with the appearance of the original hall. More than half of the windows in this part of the home are now double glazed, draughtstripped units.

### Heating and hot water

The heating system has developed as the home has been extended. There are now three gas-fired boilers, each serving a separate radiator system and hot water cylinder. Every boiler has its own programmer, although heating remains on for most of the night because of concern for frail residents wandering around during bedtime hours. The TRVs allow for adjustment in individual rooms.



### History of improvements

- 1979** First extension built, using lightweight insulating blockwork for the inner leaf and filling cavities with insulation. Gas central heating installed.
- 1985** Roof insulated with 200 mm of mineral fibre insulation.
- 1988** Second extension built. Gas central heating and hot water installed with thermostatic radiator valves (TRVs) on all radiators and sprayed foam insulation on hot water cylinder.
- 1992** All boilers fitted with controls. Total cost £650.
- 1993** Radiators in original hall fitted with TRVs.
- 1994** Infrared sensor control fitted to hot water tap often left running by a resident. Cost £250. Owners' flat converted into bedrooms and training room. Unheated conservatory added.
- 1995** Low energy bulbs installed. Cost £1000. Lighting controls fitted to external lighting.

In some cases energy efficiency measures have other benefits. One elderly resident used to leave a hot water tap running, emptying the hot water tank and leaving no water for other residents. To solve this problem the owners installed a tap with a timed infrared sensor control for a cost of £250. Now the resident moves her hand in front of the sensor to switch the tap on. It then switches off automatically, leaving enough hot water for other residents and saving energy and water at the same time.





## FUTURE POSSIBILITIES

**FUTURE POSSIBILITIES FOR ENERGY EFFICIENCY**

Batley Hall has successfully embraced energy efficiency for many years. Looking to the future the challenge is to incorporate energy management in the programme of staff training and raising awareness, as well as continuing to implement energy efficient measures.

As part of this Case Study, the following energy measures have been identified as potential opportunities for future improvement:

- draughtstripping original windows which do not need replacing
- improving insulation to hot water cylinder in original hall
- fitting TRVs to radiators in first extension
- adding weather compensation controls to heating systems
- installing condensing boilers when existing boilers need replacing
- choosing energy efficient equipment when replacing freezers, fridges, etc.

Good housekeeping measures and energy management can typically give savings of 5 to 20%. Future measures at Batley Hall could include:

- an energy efficiency campaign to increase staff awareness
- reading gas and electricity meters every month
- displaying monthly figures of fuel use in staff room.

Further information on good housekeeping and energy management in care homes is contained in Good Practice Guide 193.

**REFERENCES AND FURTHER INFORMATION**

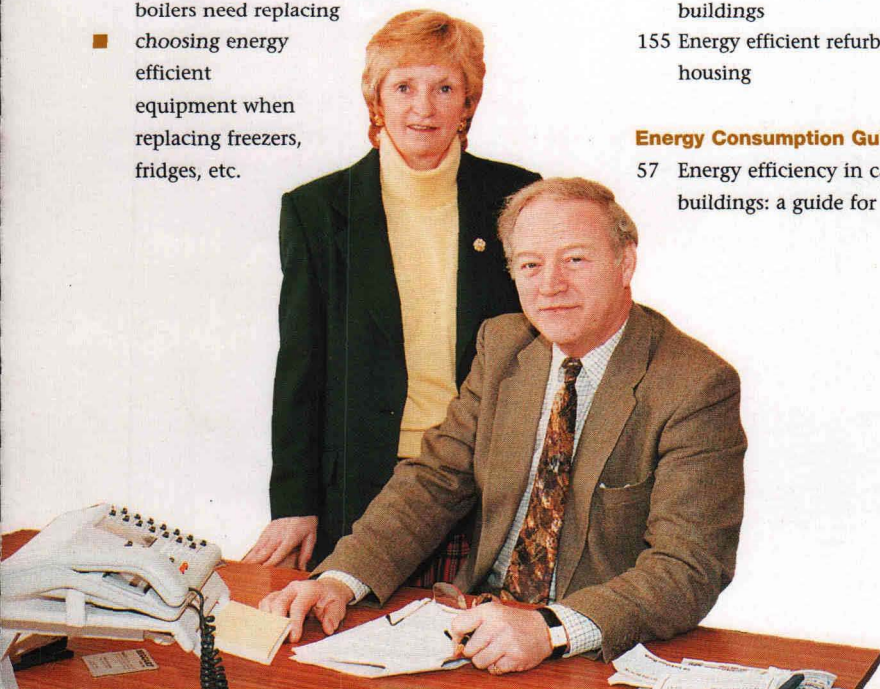
The following Best Practice programme publications are available from BRECSU Enquiries Bureau - contact details are at the bottom of the page.

**Good Practice Guides**

- 193 Good housekeeping in care homes and similar buildings
- 155 Energy efficient refurbishment of existing housing

**Energy Consumption Guide**

- 57 Energy efficiency in care homes and similar buildings: a guide for owners and managers



The Department of the Environment's Energy Efficiency Best Practice programme provides impartial, authoritative information on energy efficiency techniques and technologies in industry and buildings. This information is disseminated through publications, videos and software, together with seminars, workshops and other events. Publications within the Best Practice programme are shown opposite.

**For further information on:**

Buildings-related projects contact:  
Enquiries Bureau

**BRECSU**

Building Research Establishment  
Garston, Watford, WD2 7JR  
Tel 01923 664258  
Fax 01923 664787  
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Industrial projects contact:  
Energy Efficiency Enquiries Bureau

**ETSU**

Harwell, Oxfordshire  
OX11 0RA  
Tel 01235 436747  
Fax 01235 433066  
E-mail etsueng@aeat.co.uk

Internet **BRECSU** - <http://www.bre.co.uk/bre/otherprg/eebp/default.html>

Internet **ETSU** - <http://www.etsu.com/eebpp/ecsaver.html>

Printed in the UK for HMSO. Dd. 8470624, 10/96, C50, 77259, 5600.

**Energy Consumption Guides:** compare energy use in specific processes, operations, plant and building types.

**Good Practice:** promotes proven energy efficient techniques through Guides and Case Studies.

**New Practice:** monitors first commercial applications of new energy efficiency measures.

**Future Practice:** reports on joint R&D ventures into new energy efficiency measures.

**General Information:** describes concepts and approaches yet to be fully established as good practice.

**Fuel Efficiency Booklets:** give detailed information on specific technologies and techniques.

**Introduction to Energy Efficiency:** helps new energy managers understand the use and costs of heating, lighting etc.



## BENEFITS AND SAVINGS

**Lighting and lighting controls**

In 1995 the Hartleys purchased 125 compact fluorescent light bulbs, which have been installed throughout the home and in the external lighting. Small lights near the bed use conventional bulbs because the fittings would not take the low energy bulbs.

The outside lights have timed and photocell controls so that they only come on at night or when required.

Compact fluorescent bulbs, which use 25% of the energy of normal bulbs and last eight times longer, have not been used in the home for long enough to show savings on electricity bills. However, replacing 100 bulbs throughout the home gives a potential saving of £6000 over approximately 4 years (based on 7 hours/day use) after taking into account the extra cost (£400) of the new bulbs.

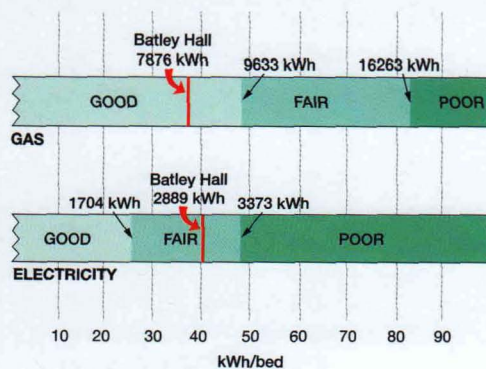
**Tariffs**

In April 1995 Batley Hall changed to a different gas supplier as this gave 25% savings in the home's gas bill. Although this does not reduce energy use, it does mean that savings can be invested in further energy efficiency measures.

**MAIN BENEFITS AND SAVINGS**

After the installation of new boiler controls in 1992 gas consumption halved and has remained at that level, saving £4770 on the annual fuel bill.

Compared with other care homes the gas use per bed space (see figure 1) is in the 'good' category (based on kWh benchmark figures in Energy Consumption Guide 'Energy efficiency in care homes' (ECON 57)). The electricity use is 'fair' and is expected to improve (see above).



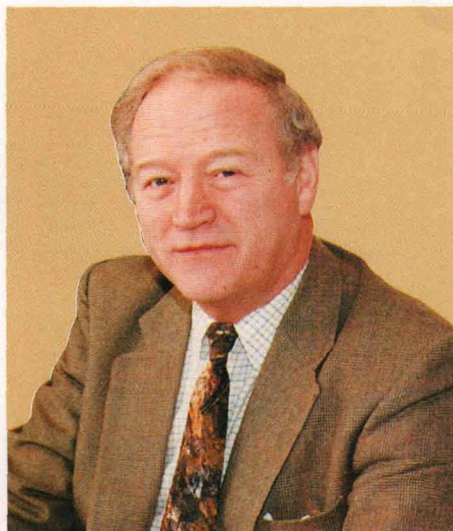
**Figure 1**  
Fuel consumption at  
Batley Hall compared  
with benchmarks





## HOST ORGANISATION

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*'Energy efficiency should be an integral part of running a home'*

**Barry Hartley, Vice-chairman, National Care Homes Association**

### **BATLEY HALL**

Barry Hartley is Vice-chairman of the National Care Homes Association. He and his wife Eileen have been running Batley Hall nursing home since 1975.

Barry Hartley believes energy efficiency should be an integral part of running a home.

'Batley Hall's philosophy behind energy improvements is investing in the future. This is also true for many other changes and improvements in care homes. Nowadays people are looking for a higher quality environment. Just as en suite bathrooms and single bedrooms are becoming a deciding factor in people's choice of care home, so will energy efficiency insure against high fuel bills and make sure that residents can live in comfort now and in the future.'